

FLOW SCHEMATIC FOR FIELD SUPPLIED DATA ENTRY AND BASE STATION  
OR SERVICE PROVIDER SUPPLIED COMPUTER ASSISTANCE

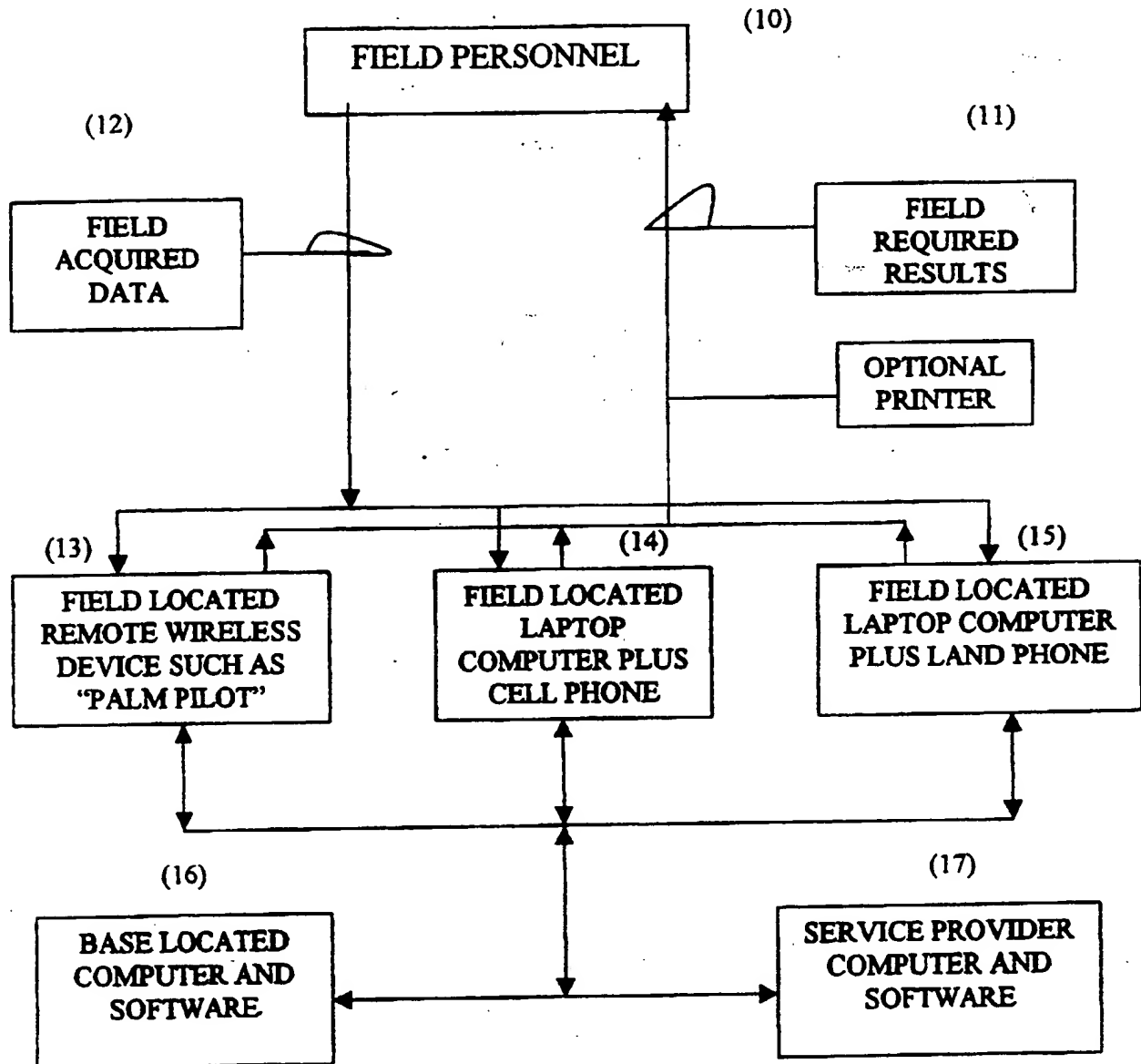


FIG. 1

PROGRAMS (18)

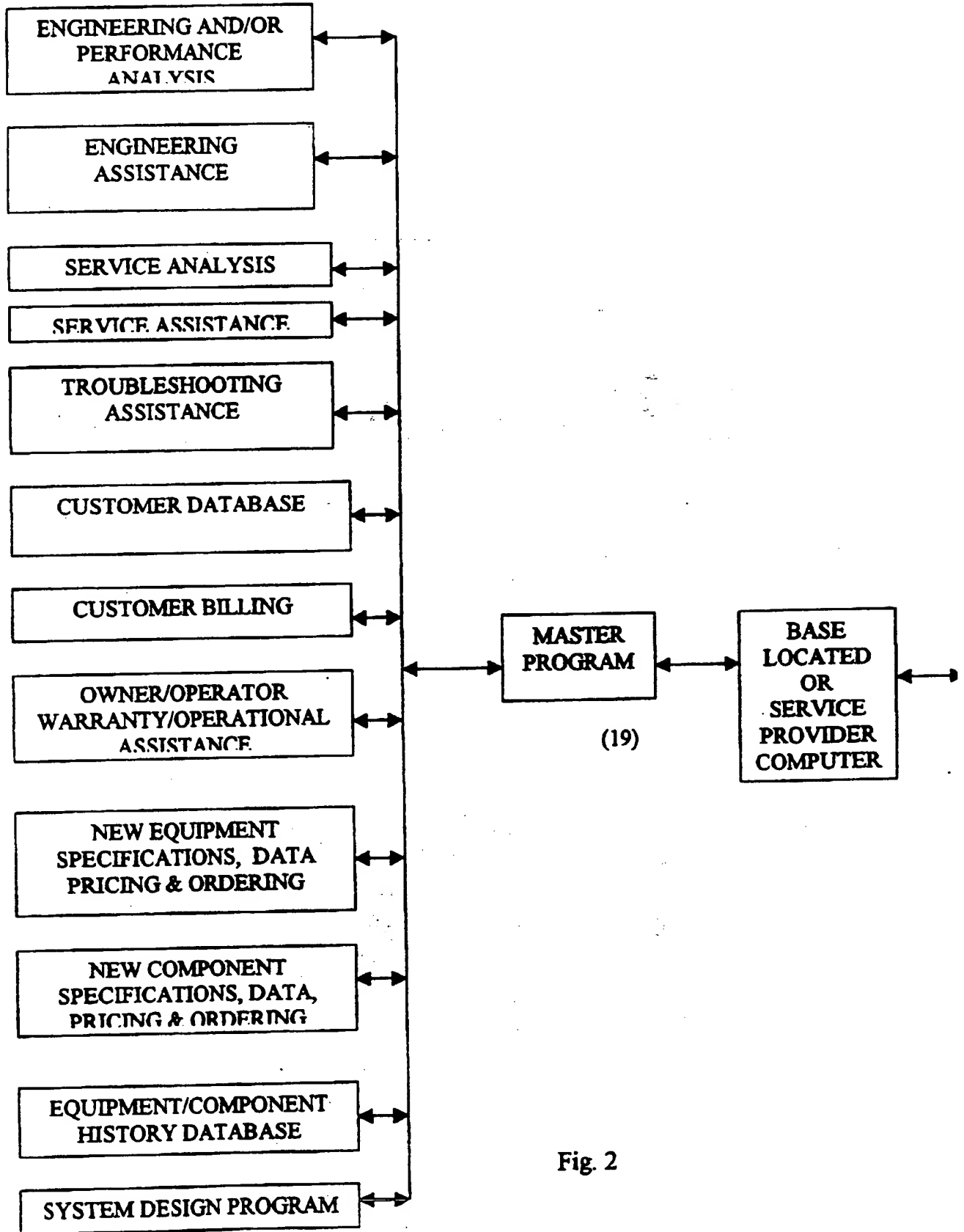


Fig. 2

FORM 65642650

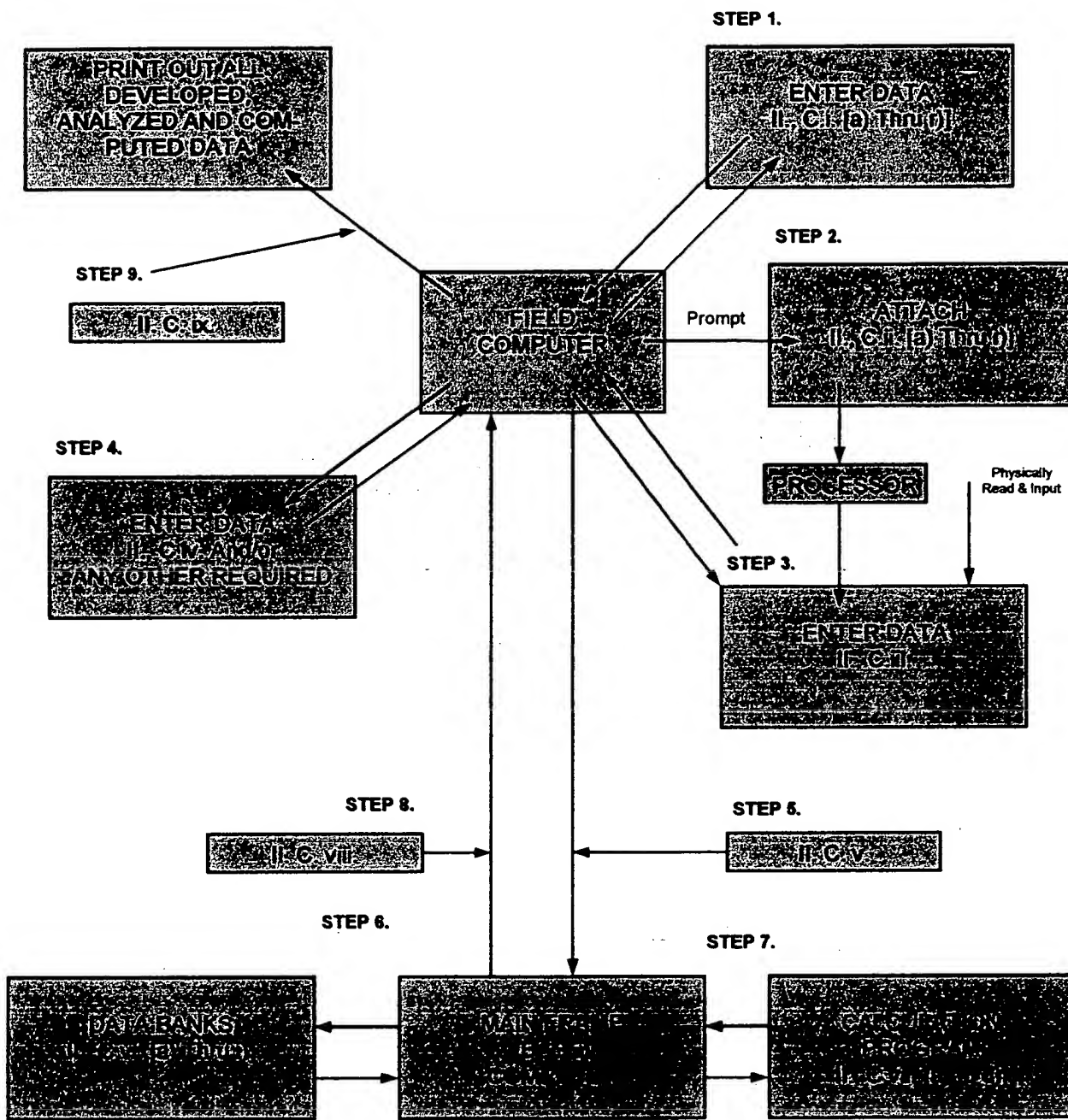


FIG. 3

FORBODEN TO DISCLOSE



II. Miscellaneous Data Sheet

Condition of:	(X which applies)		Explanation
	Good	Bad	
Condenser Coil			
Evaporator Coil			
Cabinetry AH			
Cabinetry Cond			
Ductwork			
Liquid Line Dryer			
Suction Line Dryer			
Suction Accumulator			
Liquid Receiver			
Reversing Valve			
Expansion Device			
Refrigerant Lines			
Condenser Fan Motor			
Condenser Fan Blade			
Evaporator Blower Motor			
Evaporator Blower Shaft			
Evaporator Blower Bearings			
Evaporator Blower Belts			
Electrical Wiring			
Capacitors			
Contactors			
Relays			
Transformers			
Other Component (input below)			

Obvious Oil Leak Locations


FIG. 4b

FORM 65642650

### III. OPERATIONAL DATA SHEET:

Temperatures, Refrigerant (X which applies)	Fahrenheit	Celsius
Hot Gas Discharge at Compressor		
Hot Gas Entering Condenser		
Mid Condenser Coil		
Liquid out of condenser		
Liquid into expansion device		
Mid Evaporator coil		
Suction line after evaporator		
Suction line into compressor		
Heat Pump, Suction line into rev Valve		
Heat Pump, Hot Gas line into rev Valve		

Temperatures, Air (X which applies)	Fahrenheit	Celsius
Air Entering Condenser	DB	
Air Entering Condenser	WB	
Air Exiting Condenser	DB	
Air Entering Evaporator	DB	
Air Entering Evaporator	WB	
Air Exiting Evaporator	DB	
Air Exiting Evaporator	WB	
Air Exiting Air Handler	DB	
Air Exiting Air Handler	WB	

Pressures, Refrigerant (X which applies)	PSIG	PSIA
Hot Gas Discharge @ compressor		
Hot Gas Discharge @ condenser		
Liquid Refrigerant exit condenser		
Liquid Refrigerant enter Exp Device		
Suction Gas exiting evaporator		
Suction Gas entering compressor		

Pressures, Air Flow (in inches water gauge)	
Static before Air Handler	
Static after Air Handler	
Velocity pressure Transverse Avg at straight duct section with dimensions given for main supply or return plenums	

Electrical Data (Running)	Amps	Volts	Phase	hz
	L1	L2	L3	
Compressor No 1				
Compressor No 2				
Compressor No 3				
Compressor No 4				
Condenser Fan Motors				
Quantity				
Blower Motors				
Quantity				
Pumps - Chiller Circ 1				
2				
Evaporative Tower 1				
2				
Water Cooled Circ 1				
2				

Temperatures, Water (X which applies)	Fahrenheit	Celsius
Chiller	EWT	
	LCWT	
Water Cooled Condenser	EWT	
	LWT	

Water Flow Rate (X which applies)	PSIG	PSIA
Chiller, Evaporator	Return Line	
Chiller, Evaporator	Supply Line	
Water Cooled Equip		
Condenser	Return Line	
Condenser	Supply Line	

Fig. 4c

#### IV. TROUBLE SHOOTING QUESTIONNAIRE DATA SHEET

Mark all those that apply (X)

<input type="checkbox"/>	<b>Chiller Condenser</b>	<input type="checkbox"/>	<b>Geothermal</b>
<input type="checkbox"/>	Air Cooled	<input type="checkbox"/>	Dual Source
<input type="checkbox"/>	Water Cooled		

Symptom (examples - list to be added to)

<input type="checkbox"/>	Unit will not run
<input type="checkbox"/>	Outdoor unit section will not run
<input type="checkbox"/>	Compressor will not start
<input type="checkbox"/>	Outdoor fan motor will not start
<input type="checkbox"/>	Outdoor unit condenser water pump will not start
<input type="checkbox"/>	Compressor hums but will not start
<input type="checkbox"/>	Compressor cycling on overload
<input type="checkbox"/>	Compressor off on high pressure control
<input type="checkbox"/>	Noisy compressor
<input type="checkbox"/>	Compressor loses oil
<input type="checkbox"/>	No cooling, but compressor runs continuously
<input type="checkbox"/>	Liquid Refrigerant flooding compressor (cap tube system)
<input type="checkbox"/>	Liquid Refrigerant flooding compressor (fixed orifice)
<input type="checkbox"/>	Liquid Refrigerant flooding compressor (TXV)
<input type="checkbox"/>	High head pressure
<input type="checkbox"/>	Low head pressure
<input type="checkbox"/>	High Suction Pressure
<input type="checkbox"/>	Low suction pressure
<input type="checkbox"/>	High operating costs
<input type="checkbox"/>	Other



<input type="checkbox"/>	<b>Water Tower</b>
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Symptom (examples - list to be added to)

<input type="checkbox"/>	Fan motor will not run
<input type="checkbox"/>	Cooling return water temperature high
<input type="checkbox"/>	Scale buildup is rapid
<input type="checkbox"/>	Sump water hardness is high
<input type="checkbox"/>	Other



<input type="checkbox"/>	<b>Fan Coil Unit</b>
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Symptom (examples - list to be added to)

<input type="checkbox"/>	Fan motor will not run
<input type="checkbox"/>	No cooling, but fan is on
<input type="checkbox"/>	Too much cooling
<input type="checkbox"/>	Other

Fig. 4d

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8822

☐ Oil Heat

Symptom (examples - list to be added to)

<input type="checkbox"/>	Burner will not start
<input type="checkbox"/>	Burner starts and fires but short cycles
<input type="checkbox"/>	Burner starts and fires but does not heat enough
<input type="checkbox"/>	Burner starts and fires then locks out on safety
<input type="checkbox"/>	Burner starts and fires but no flame is established
<input type="checkbox"/>	Burner starts and fires but loses flame and locks out on safety
<input type="checkbox"/>	Too much heat; burner runs continuously
<input type="checkbox"/>	Too little heat; burner runs continuously
<input type="checkbox"/>	Other
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

☐ Gas Heat

Symptom (examples - list to be added to)

<input type="checkbox"/>	Unit will not run
<input type="checkbox"/>	Fan will not run
<input type="checkbox"/>	Other
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

☐ Electric Heat

Symptom (examples - list to be added to)

<input type="checkbox"/>	Unit will not run
<input type="checkbox"/>	Fan will not run
<input type="checkbox"/>	Other
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

<input type="checkbox"/> Air Conditioning	<input type="checkbox"/> Air Cooled	<input type="checkbox"/> Geothermal
	<input type="checkbox"/> Water Cooled	<input type="checkbox"/> Dual Source
<input type="checkbox"/> Split System	<input type="checkbox"/> Package	

Symptom (examples - list to be added to)

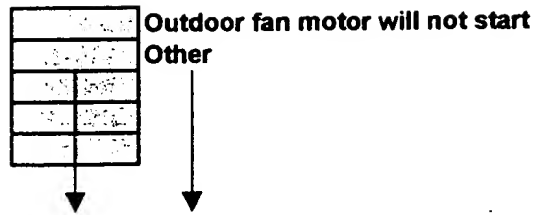
<input type="checkbox"/>	Unit will not run
<input type="checkbox"/>	Outdoor unit section will not run
<input type="checkbox"/>	Compressor will not start
<input type="checkbox"/>	2nd stage compressor will not start

Fig 4e

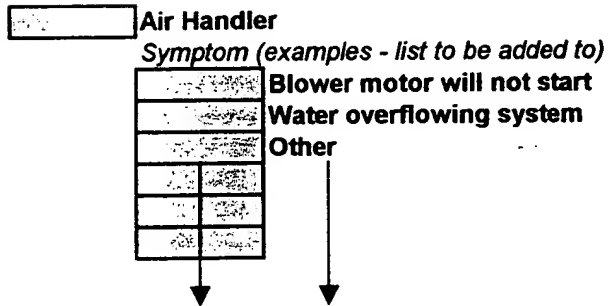
FORM 65642660



9522



**Other**

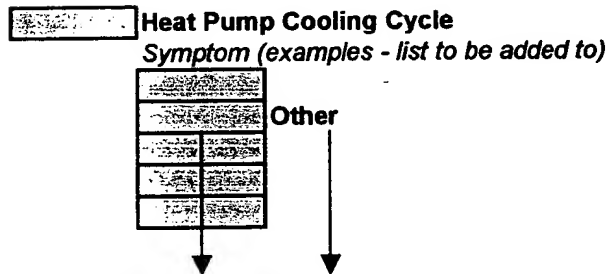


Symptom (examples - list to be added to)

### Blower motor will not start

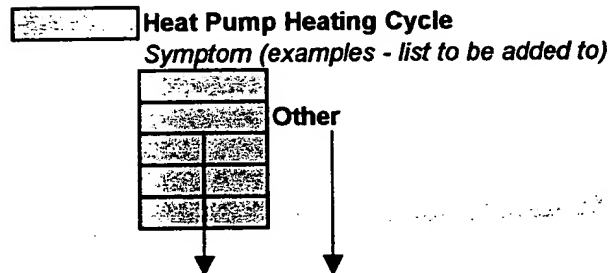
### Water overflowing system

### Other



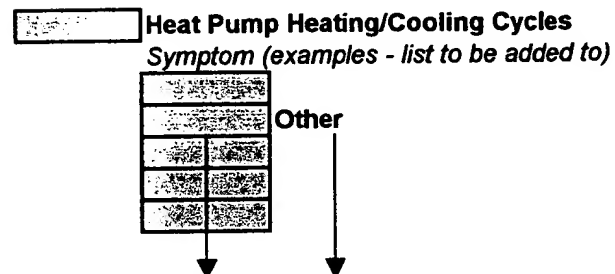
**Symptom (examples - list to be added to)**

**Other**



**Symptom (examples - list to be added to)**

**Other**



**Symptom (examples - list to be added to)**

Other







## High Temp

### Medium Temp

### Low Temp


## Ultra Low Temp

Fig 4f



**Other**

SECRET

**Other**



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**Other**

FIG. 49

V. TEST AND BALANCE - AIR VOLUME DATA SHEET

A. Mark all those that apply (X)

	Constant volume system
	VAV System
	Other

↓ ↓

B. Fill in all appropriate (highlighted) below:

Example:

	Design Air Flow VAV #1
	Other

↓ ↓

FIG. 4h

10924959-00001

# I. AVAILABLE INFORMATION DATA SHEET:

## PART A

TYPE OF ANALYSIS (X which applies):

Perf ☒ Trblstg ☐ T & B ☐

Job Name:

X Y Z Homeowner

Phone: (888) 555-8000

Fax: (888) 555-8000

Job Address:

street 3333 Anywhere St.

city state

zip 32655

Other: (e-mail)

Will Homeowner

other

Date: 7/6/01

Start Time:

1:40 PM

Refrigerant Type:

R-22

Air-cooled (X)

Water-cooled (X)

Unit Number or Specific Location:

only system at residence

Type of System (X):

Chiller

Package

Split

A/C

H/P

Refrig

## PART B

Package System

Chiller/Condenser

Fan Coil Unit:

Split System Condenser A/C

Split System Condenser H/P

Split System Air Handler

Refrigeration Unit Condenser

Refrigeration Unit Evaporator

manuf	model no	serial no	quantity	model no	serial no	fan speed

## DATA PLATE INFORMATION

Condenser Fan Motor

Blower Fan Motor

Compressor No 1

Compressor No 2

Compressor No 3

Compressor No 4

mfg	model no	serial no	hp	rpm	FLA/RLA	LRA	volts	phase	hz

## Main Supply Plenum Dimensions

Previous Month Electrical Consumption (KW)

Previous Month System Water Consumption (Gals)

Previous Month Gas Consumption (Cu Ft)

Return Plenum Dim	
Total Cost (\$)	
Total Cost (\$)	
Total Cost (\$)	

Fig. 5a

ET 18223695845  
12 of 22

# THE BIBLE

Water Flow Rate		PSIG	PSIA
(X which applies)			
Chiller, Evaporator	Return Line		
Chiller, Evaporator	Supply Line		
Water Cooled Equip			
Condenser	Return Line		
Condenser	Supply Line		

Fig. 5b

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**PART A**

Perf	Trblstg	T & B
X		

XVE Warszawa Phone:  555-8888 Fax:  555-8880

street 3333 Anywhere St, city  state Fla. zip 32655

other

Start Time: 1:40 PM

	Air-cooled (X)	Water-cooled (X)
2	X	X

on:	Only system of residence
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Package	Split	X

quantity	model no	serial no	fan speed
1	1000	1000	1000
2	1000	1000	1000
3	1000	1000	1000
4	1000	1000	1000
5	1000	1000	1000
6	1000	1000	1000
7	1000	1000	1000
8	1000	1000	1000
9	1000	1000	1000
10	1000	1000	1000
11	1000	1000	1000
12	1000	1000	1000
13	1000	1000	1000
14	1000	1000	1000
15	1000	1000	1000
16	1000	1000	1000
17	1000	1000	1000
18	1000	1000	1000
19	1000	1000	1000
20	1000	1000	1000
21	1000	1000	1000
22	1000	1000	1000
23	1000	1000	1000
24	1000	1000	1000
25	1000	1000	1000
26	1000	1000	1000
27	1000	1000	1000
28	1000	1000	1000
29	1000	1000	1000
30	1000	1000	1000
31	1000	1000	1000
32	1000	1000	1000
33	1000	1000	1000
34	1000	1000	1000
35	1000	1000	1000
36	1000	1000	1000
37	1000	1000	1000
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39	1000	1000	1000
40	1000	1000	1000
41	1000	1000	1000
42	1000	1000	1000
43	1000	1000	1000
44	1000	1000	1000
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46	1000	1000	1000
47	1000	1000	1000
48	1000	1000	1000
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79	1000	1000	1000
80	1000	1000	1000
81	1000	1000	1000
82	1000	1000	1000
83	1000	1000	1000
84	1000	1000	1000
85	1000	1000	1000
86	1000	1000	1000
87	1000	1000	1000
88	1000	1000	1000
89	1000	1000	1000
90	1000	1000	1000

[illegible][illegible]

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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EVCON	1	BR 1150608	W3 0001033	N.Y.
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EVCOR	AAZD-058	AAZD-058	AAZD-058	AAZD-058
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[illegible]

	N.A.	V	N.V.	Y	N.V.	Y	N/V	208/230	60
① Smith	N.A.	Y	N.V.	Y	N.V.	Y	N/V	208/230	60

Case No.	Case Name	Case Type	Case Status	Case Date	Case Time	Case Location	Case Notes
1	A.O. Spina	N/A	N/A	2008/230	60		
2	A.O. Spina	N/A	N/A	2008/230	60		

Brvsto	H25A&QCD	2xy071672	N.A.	21.7	135	208/230	(	60
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[illegible][illegible]

20'x20' Return Plenum Dim 20'x24'

167.99		
<b>Total Cost (\$)</b>	1846	

	Total Cost (\$)	
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Total Cost (\$)

FIG. 6a.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80																				

Temperatures, Refrigerant (X which applies)	Fahrenheit	Celsius
	X	
Hot Gas Discharge at Compressor		200
Hot Gas Entering Condenser		
Mid Condenser Coil		
Liquid out of condenser		124
Liquid into expansion device		124
Mid Evaporator coil		
Suction line after evaporator		
Suction line into compressor		75
Heat Pump, Suction line into rev Valve		
Heat Pump, Hot Gas line into rev Valve		

Electrical Data (Running)		Amps			Volts	Phase	hz
		L1	L2	L3			
Compressor No 1		22.2	22.0	—	232	1	60
Compressor No 2							
Compressor No 3							
Compressor No 4							
Condenser Fan Motors		1.6	1.7	—	232	1	60
Quantity	1						
Blower Motors		3.5	3.6	—	232	1	60
Quantity	1						
Pumps - Chiller Circ	1						
	2						
Evaporative Tower	1						
	2						
Water Cooled Circ	1						
	2						

Temperatures, Air	Fahrenheit	Celsius
(X which applies)	<input checked="" type="checkbox"/>	
<u>Air Entering Condenser</u>	DB	92
<u>Air Entering Condenser</u>	WB	
<u>Air Exiting Condenser</u>	DB	
<u>Air Entering Evaporator</u>	DB	75.0
<u>Air Entering Evaporator</u>	WB	65.0
<u>Air Exiting Evaporator</u>	DB	N.A.
<u>Air Exiting Evaporator</u>	WB	N.A.
<u>Air Exiting Air Handler</u>	DB	59.0
<u>Air Exiting Air Handler</u>	WB	58.4

Water Flow Rate		PSIG	PSIA
(X which applies)			
Chiller, Evaporator	Return Line		
Chiller, Evaporator	Supply Line		
Water Cooled Equip			
Condenser	Return Line		
Condenser	Supply Line		

Fig. 6b

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ET 18.223695865  
16 of 22

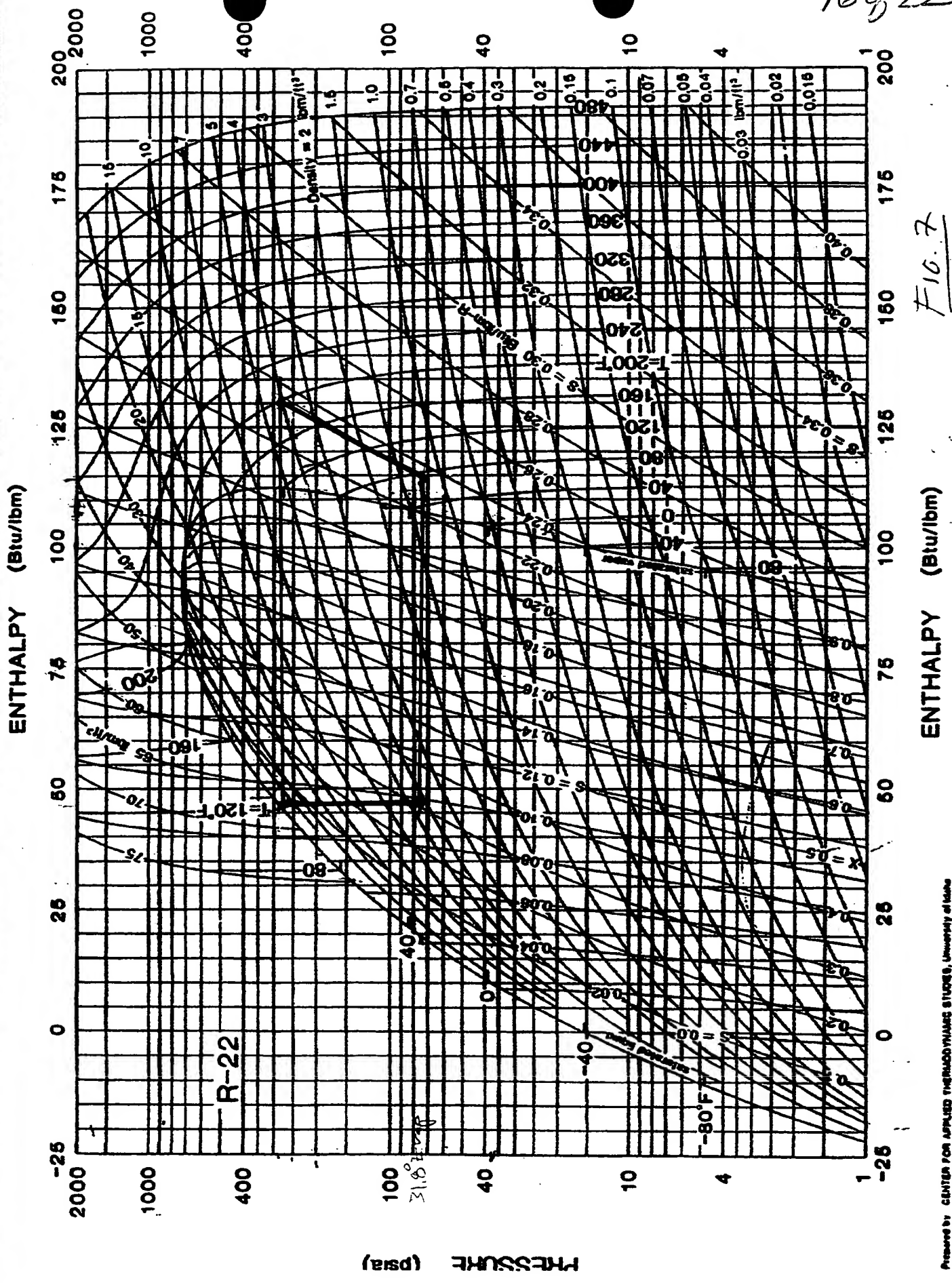


FIG. 7



ET182236958.US  
17 of 22  
19.9

# Thermophysical Properties of Refrigerants

Refrigerant 22 (Chlorodifluoromethane) Properties of Saturated Liquid and Saturated Vapor

Temp. °F	Pressure, psia	Density, lb/ft <sup>3</sup>		Enthalpy, Btu/lb		Entropy, Btu/lb-°F		Specific Heat <i>c<sub>p</sub></i> , Btu/lb-°F		<i>c<sub>p</sub></i> , Btu/lb-°F	Velocity of Sound, ft/s		Viscosity, lb <sub>m</sub> /ft-h		Thermal Cond., Btu/h-ft-°F		Surface Tension, dyne/cm	Temp. °F
		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor		Liquid	Vapor	Liquid	Vapor	Liquid	Vapor		
-250.00	—	107.37	—	-63.169	76.604	-0.21914	0.44952	—	0.1018	1.2914	—	395.	—	—	—	—	—	-250.00
-240.00	—	106.41	—	-56.462	77.629	-0.18786	0.42332	—	0.1033	1.2860	—	403.	—	—	—	—	—	-240.00
-230.00	—	105.48	—	-51.569	78.669	-0.16605	0.40101	—	0.1048	1.2807	—	411.	—	—	—	—	36.75	-230.00
-220.00	0.002	104.58	16805.	-47.705	79.724	-0.14958	0.38211	—	0.1064	1.2754	—	419.	—	—	—	—	35.70	-220.00
-210.00	0.004	103.70	6982.6	-44.426	80.796	-0.13616	0.36538	—	0.1080	1.2703	—	427.	—	—	—	—	34.67	-210.00
-200.00	0.010	102.81	3151.5	-41.474	81.882	-0.12457	0.35048	—	0.1096	1.2653	—	435.	—	—	—	—	33.63	-200.00
-190.00	0.022	101.92	1527.4	-38.706	82.984	-0.11411	0.33715	—	0.1113	1.2604	—	442.	—	—	—	—	32.61	-190.00
-180.00	0.044	101.03	787.79	-36.038	84.100	-0.10439	0.32518	—	0.1130	1.2558	—	449.	—	—	—	—	31.59	-180.00
-170.00	0.084	100.12	429.22	-33.424	85.230	-0.09521	0.31441	—	0.1147	1.2515	—	456.	—	—	—	—	30.58	-170.00
-160.00	0.151	99.22	245.51	-30.839	86.373	-0.08644	0.30470	—	0.1165	1.2474	—	463.	—	—	—	—	29.57	-160.00
-150.00	0.262	98.30	146.65	-28.269	87.528	-0.07800	0.29594	—	0.1183	1.2437	—	470.	—	—	—	—	28.57	-150.00
-140.00	0.435	97.38	91.059	-25.708	88.692	-0.06986	0.28801	—	0.1201	1.2403	—	476.	—	—	—	—	27.57	-140.00
-130.00	0.696	96.46	58.544	-23.150	89.864	-0.06198	0.28082	—	0.1221	1.2374	—	482.	—	—	—	—	26.59	-130.00
-120.00	1.080	95.53	38.833	-20.594	91.040	-0.05435	0.27430	0.2555	0.1241	1.2349	3483.	488.	—	—	—	—	25.61	-120.00
-110.00	1.626	94.60	26.494	-18.038	92.218	-0.04694	0.26838	0.2555	0.1262	1.2329	3384.	494.	—	—	0.0765	—	24.64	-110.00
-100.00	2.384	93.66	18.540	-15.481	93.397	-0.03973	0.26298	0.2557	0.1285	1.2315	3290.	500.	—	—	0.0749	—	23.67	-100.00
-90.00	3.413	92.71	13.275	-12.921	94.572	-0.03271	0.25807	0.2561	0.1308	1.2307	3198.	505.	—	—	0.0734	0.00292	22.71	-90.00
-80.00	4.778	91.75	9.7044	-10.355	95.741	-0.02587	0.25357	0.2567	0.1334	1.2305	3110.	510.	—	—	0.0718	0.00315	21.76	-80.00
-70.00	6.555	90.79	7.2285	-7.783	96.901	-0.01919	0.24945	0.2574	0.1361	1.2310	3023.	514.	—	—	0.0703	0.00338	20.82	-70.00
-60.00	8.830	89.81	5.4766	-5.201	98.049	-0.01266	0.24567	0.2584	0.1389	1.2323	2937.	519.	—	—	0.0688	0.00360	19.89	-60.00
-50.00	11.696	88.83	4.2138	-2.608	99.182	-0.00627	0.24220	0.2596	0.1420	1.2344	2852.	522.	—	—	0.0673	0.00382	18.96	-50.00
-45.00	13.383	88.33	3.7160	-1.306	99.742	-0.00312	0.24056	0.2604	0.1436	1.2358	2810.	524.	—	—	0.0665	0.00393	18.50	-45.00
-41.44b	14.696	87.97	3.4048	-0.377	100.138	-0.00090	0.23944	0.2609	0.1448	1.2369	2780.	525.	—	—	0.0660	0.00401	18.18	-41.44
-40.00	15.255	87.82	3.2880	0.000	100.296	0.00000	0.23899	0.2611	0.1453	1.2374	2768.	526.	—	—	0.0658	0.00404	18.05	-40.00
-35.00	17.329	87.32	2.9185	1.310	100.847	0.00309	0.23748	0.2620	0.1471	1.2393	2725.	527.	—	—	0.0651	0.00414	17.59	-35.00
-30.00	19.617	86.81	2.5984	2.624	101.391	0.00616	0.23602	0.2629	0.1489	1.2414	2683.	529.	—	—	0.0643	0.00425	17.14	-30.00
-25.00	22.136	86.29	2.3202	3.944	101.928	0.00920	0.23462	0.2638	0.1507	1.2437	2641.	530.	—	—	0.0636	0.00435	16.69	-25.00
-20.00	24.899	85.77	2.0774	5.268	102.461	0.01222	0.23327	0.2648	0.1527	1.2463	2599.	531.	—	—	0.0629	0.00445	16.24	-20.00
-15.00	27.924	85.25	1.8650	6.598	102.986	0.01521	0.23197	0.2659	0.1547	1.2493	2557.	532.	—	—	0.0622	0.00456	15.79	-15.00
-10.00	31.226	84.72	1.6784	7.934	103.503	0.01818	0.23071	0.2671	0.1567	1.2525	2515.	533.	—	—	0.0614	0.00466	—	-10.00
-5.00	34.821	84.18	1.5142	9.276	104.013	0.02113	0.22949	0.2684	0.1589	1.2560	2473.	534.	—	—	0.0607	0.00476	—	-5.00
0.00	38.726	83.64	1.3691	10.624	104.515	0.02406	0.22832	0.2697	0.1611	1.2599	2431.	535.	0.615	0.0268	0.0600	0.00486	—	0.00
5.00	42.960	83.09	1.2406	11.979	105.009	0.02697	0.22718	0.2710	0.1634	1.2641	2389.	535.	0.597	0.0271	0.0593	0.00496	—	5.00
10.00	47.538	82.54	1.1265	13.342	105.493	0.02987	0.22607	0.2725	0.1658	1.2687	2346.	535.	0.580	0.0274	0.0586	0.00506	—	10.00
15.00	52.480	81.98	1.0250	14.712	105.968	0.03275	0.22500	0.2740	0.1683	1.2737	2304.	536.	0.563	0.0276	0.0579	0.00516	—	15.00
20.00	57.803	81.41	0.9343	16.090	106.434	0.03561	0.22395	0.2756	0.1709	1.2792	2262.	536.	0.546	0.0279	0.0572	0.00526	—	20.00
25.00	63.526	80.84	0.8532	17.476	106.891	0.03846	0.22294	0.2773	0.1737	1.2851	2219.	536.	0.530	0.0282	0.0566	0.00536	—	25.00
30.00	69.667	80.26	0.7804	18.871	107.336	0.04129	0.22195	0.2791	0.1765	1.2915	2177.	536.	0.515	0.0284	0.0559	0.00546	—	30.00
35.00	76.245	79.67	0.7150	20.275	107.769	0.04411	0.22098	0.2809	0.1794	1.2984	2134.	535.	0.499	0.0287	0.0552	0.00555	—	35.00
40.00	83.280	79.07	0.6561	21.688	108.191	0.04692	0.22004	0.2829	0.1825	1.3059	2091.	535.	0.484	0.0290	0.0545	0.00565	—	40.00
45.00	90.791	78.46	0.6029	23.111	108.600	0.04972	0.21912	0.2849	0.1857	1.3141	2048.	534.	0.470	0.0292	0.0538	0.00575	—	45.00
50.00	98.799	77.84	0.5548	24.544	108.997	0.05251	0.21821	0.2870	0.1891	1.3229	2005.	533.	0.456	0.0295	0.0532	0.00584	—	50.00
55.00	107.32	77.22	0.5111	25.988	109.379	0.05529	0.21732	0.2893	0.1927	1.3324	1962.	532.	0.442	0.0298	0.0525	0.00594	—	55.00
60.00	116.38	76.58	0.4715	27.443	109.748	0.05806	0.21644	0.2916	0.1964	1.3428	1919.	531.	0.429	0.0301	0.0518	0.00604	—	60.00
65.00	126.00	75.93	0.4355	28.909	110.103	0.06082	0.21557	0.2941	0.2003	1.3540	1876.	530.	0.416	0.0303	0.0512	0.00613	—	65.00
70.00	136.19	75.27	0.4026	30.387	110.441	0.06358	0.21472	0.2967	0.2045	1.3663	1832.	528.	0.404	—	0.0505	0.00623	—	70.00
75.00	146.98	74.60	0.3726	31.877	110.761	0.06633	0.21387	0.2994	0.2089	1.3796	1788.	527.	0.392	—	0.0499	0.00632	—	75.00
80.00	158.40	73.92	0.3451	33.381	111.066	0.06907	0.21302	0.3024	0.2135	1.3941	1744.	525.	0.380	—	0.0492	0.00642	—	80.00
85.00	170.45	73.22	0.3199	34.898	111.350	0.07182	0.21218	0.3055	0.2185	1.4100	1700.	523.	0.369	—	0.0486	0.00652	—	85.00
90.00	183.17	72.51	0.2968	36.430	111.616	0.07456	0.21134	0.3088	0.2238	1.4275	1655.	520.	0.358	—	0.0479	0.00661	—	90.00
95.00	196.57	71.79	0.2756	37.977	111.859	0.07730	0.21050	0.3123	0.2295	1.4467	1611.	518.	0.348	—	0.0473	0.00671	—	95.00
100.00	210.69	71.05	0.2560	39.538	112.081	0.08003	0.20965	0.3162	0.2356	1.4678	1566.	515.	0.338	—	0.0466	0.00680	—	100.00
105.0																		

ET/18223695845  
18 of 22

**TABLE 6-6**  
**Superheated Vapor — Constant Pressure Tables at Pressure Intervals — R-22**  
V = volume in cuft/lb; H = enthalpy in Btu/lb; S = entropy in Btu/(lb)(°F) (saturation properties in parentheses)

Temp. °F	Absolute Pressure lbf/in.														
	75			80			85			90			95		
	60.304 PSIG (34.13 F)			65.304 PSIG (37.76 F)			70.304 PSIG (41.22 F)			75.304 PSIG (44.53 F)			80.304 PSIG (47.71 F)		
	V	H	S	V	H	S	V	H	S	V	H	S	V	H	S
40	0.74013	108.862	0.22303	0.66782	108.347	0.22107	—	—	—	—	—	—	—	—	—
50	0.78148	110.393	0.22845	0.70622	110.098	0.22454	0.66115	109.799	0.22272	0.61924	109.496	0.22098	0.58165	109.187	0.21928
60	0.82298	112.119	0.22981	0.72820	111.843	0.22793	0.68030	111.564	0.22614	0.63766	111.280	0.22443	0.59944	110.992	0.22277
70	0.86298	113.843	0.23309	0.74780	113.584	0.23125	0.69906	113.322	0.22949	0.65568	113.056	0.22781	0.61681	112.787	0.22819
80	0.82323	115.565	0.23632	0.76708	115.323	0.23450	0.71748	115.076	0.23278	0.67334	114.827	0.23112	0.63381	114.575	0.22963
90	0.84320	117.291	0.23948	0.78605	117.061	0.23770	0.73559	116.829	0.23599	0.69069	116.594	0.23437	0.65048	116.357	0.23281
100	0.86291	119.019	0.24260	0.80477	118.801	0.24083	0.75343	118.582	0.23915	0.70777	118.360	0.23756	0.66687	118.137	0.23902
110	0.88239	120.749	0.24566	0.82325	120.544	0.24392	0.77104	120.336	0.24226	0.72459	120.127	0.24068	0.68301	119.915	0.23917
120	0.90167	122.485	0.24868	0.84152	122.290	0.24696	0.78842	122.093	0.24532	0.74120	121.894	0.24376	0.69892	121.694	0.24228
130	0.92076	124.226	0.25168	0.85960	124.040	0.24995	0.80561	123.853	0.24833	0.75780	123.665	0.24678	0.71462	123.475	0.24531
140	0.93968	125.973	0.25460	0.87751	125.796	0.25290	0.82263	125.618	0.25130	0.77383	125.439	0.24977	0.73015	125.259	0.24831
150	0.95844	127.726	0.25750	0.89526	127.558	0.25582	0.83948	127.389	0.25422	0.78989	127.218	0.25271	0.74650	127.047	0.25128
160	0.97707	129.487	0.26036	0.91286	129.326	0.25869	0.85619	129.165	0.25711	0.80581	129.002	0.25561	0.76071	128.839	0.25418
170	0.99557	131.255	0.26319	0.93034	131.102	0.26154	0.87277	130.948	0.25997	0.82159	130.793	0.25848	0.77578	130.637	0.25706
180	1.0139	133.032	0.26599	0.94770	132.885	0.26435	0.88923	132.738	0.26279	0.83725	132.589	0.26131	0.79073	132.440	0.25990
190	1.0322	134.817	0.26876	0.96495	134.677	0.26712	0.90556	134.535	0.26558	0.85279	134.393	0.26411	0.80556	134.251	0.26271
200	1.0504	136.611	0.27150	0.98209	136.476	0.26987	0.92182	136.341	0.26833	0.86824	136.205	0.26687	0.82029	136.068	0.26548
210	1.0685	138.414	0.27421	0.99915	138.284	0.27259	0.93797	138.154	0.27106	0.88359	138.024	0.26961	0.83492	137.893	0.26823
220	1.0865	140.226	0.27690	1.0161	140.101	0.27529	0.95404	139.977	0.27376	0.89885	139.851	0.27232	0.84948	139.725	0.27094
230	1.1044	142.047	0.27956	1.0330	141.928	0.27795	0.97003	141.808	0.27844	0.92403	141.687	0.27500	0.86393	141.566	0.27363

FIG. 9

TABLE 6-6

ET18223695845  
19 of 22

# PERFORMANCE TABLE

BRISTOL COMPRESSORS  
MODEL H25A56QCBC 60Hz

REFRIGERANT : R22  
DISPLACEMENT : 5.46 CUBIC INCHES  
MOTOR : 2 -POLE  
VOLTAGE : 230-1-60  
SUBCOOLING : 15.0 deg F  
SUPERHEAT : 20.0 deg F

Release EN: A29905  
Revision EN: B15908 Date: 7/94  
Preliminary Data

## CAPACITY (BTU/HR)

EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55
CONDENSING	80	12512	15425	18645	22184	26057	30279	34864	39825	45178	50936	57113	63724	70782	78303	83700
TEMPERATURE	90	11331	14025	17018	20325	23960	27937	32271	36975	42064	47552	53453	59782	66553	73779	81176
deg F	100	10079	12554	15322	18398	21796	25530	29614	34063	38890	44110	49737	55785	62269	69203	76600
	110		11057	13602	16449	19611	23103	26939	31134	35700	40654	46008	51777	57976	64618	71717
	120				14520	17448	20700	24290	28231	32539	37227	42310	47802	53717	60068	66872
	130						18365	21710	25400	29450	33875	38688	43903	49536	55599	62108
	140							22684	26478	30641	35185	40126	45478	51254	57469	64138
	150										31846	36514	41586	47077	53000	59371

## POWER (WATTS)

EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55
CONDENSING	80	2163	2319	2465	2599	2721	2830	2925	3005	3071	3121	3155	3172	3171	3153	
TEMPERATURE	90	2231	2404	2566	2719	2860	2990	3108	3213	3304	3382	3444	3492	3523	3538	
deg F	100	2271	2459	2640	2812	2974	3127	3268	3399	3518	3624	3716	3795	3860	3909	3943
	110		2487	2687	2879	3064	3240	3407	3565	3712	3847	3972	4083	4182	4268	4339
	120				2922	3130	3331	3525	3710	3887	4054	4210	4356	4491	4613	4723
	130						3400	3621	3836	4043	4242	4433	4614	4785	4946	5096
	140								3943	4182	4414	4640	4858	5067	5267	5458
	150											4832	5087	5336	5577	5810

## CURRENT (AMPS)

EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55
CONDENSING	80	9.9	10.6	11.3	11.8	12.3	12.8	13.1	13.4	13.7	13.9	14.1	14.2	14.2	14.3	
TEMPERATURE	90	10.1	10.9	11.6	12.3	12.8	13.4	13.9	14.3	14.6	15.0	15.2	15.5	15.7	15.9	
deg F	100	10.1	11.0	11.9	12.6	13.3	13.9	14.5	15.1	15.5	16.0	16.4	16.8	17.1	17.4	17.7
	110		11.1	12.0	12.9	13.7	14.4	15.1	15.8	16.4	17.0	17.5	18.0	18.5	19.0	19.4
	120				13.1	14.0	14.8	15.7	16.4	17.2	17.9	18.6	19.2	19.8	20.5	21.1
	130						15.1	16.1	17.0	17.9	18.7	19.5	20.3	21.1	21.9	22.7
	140								17.5	18.5	19.5	20.4	21.4	22.3	23.3	24.2
	150											21.2	22.4	23.5	24.6	25.7

## MASS FLOW (LB/HR)

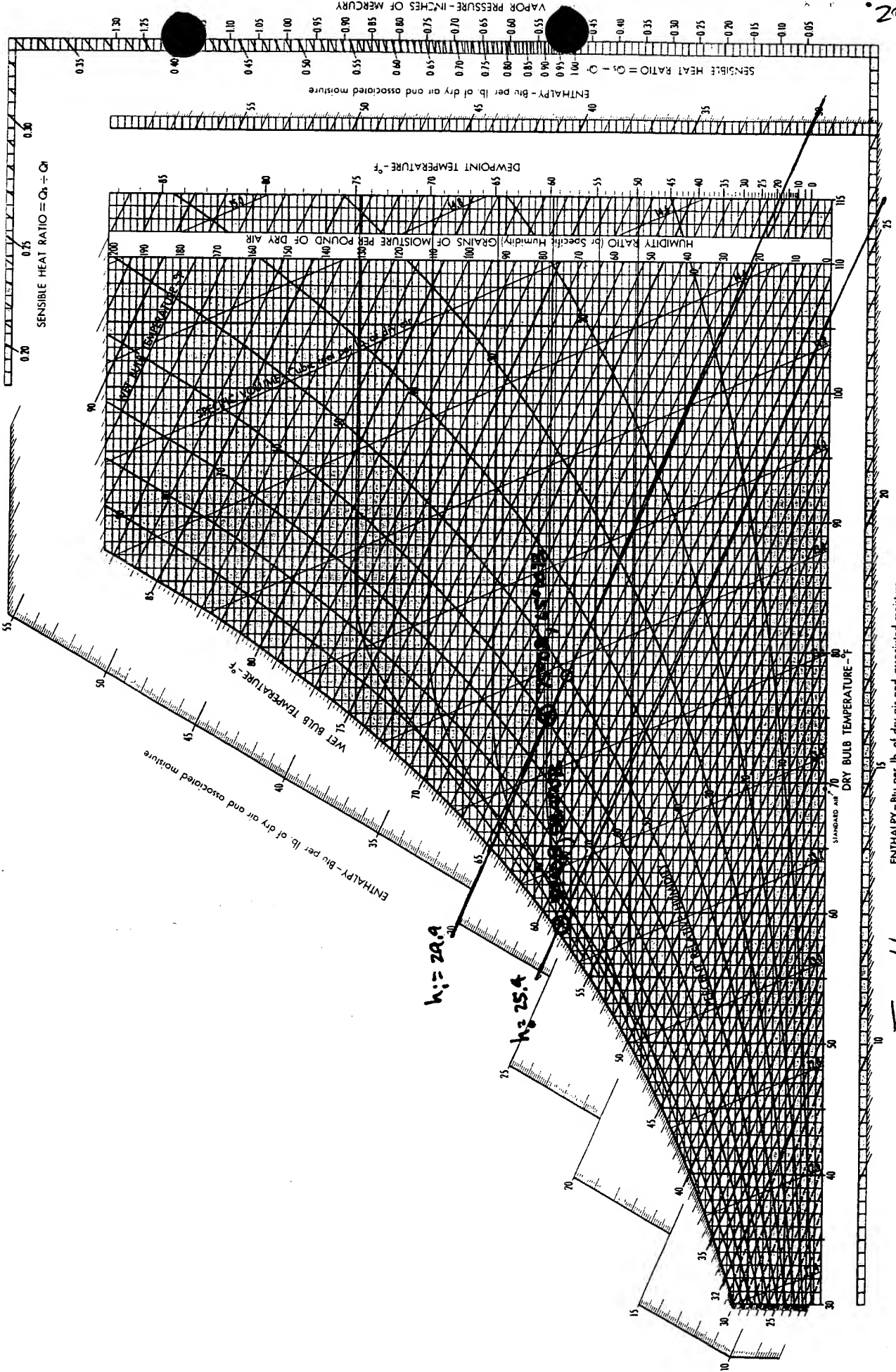
EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55
CONDENSING	80	162.6	199.6	239.7	283.0	329.9	380.4	434.7	493.0	555.5	622.4	693.9	770.1	851.2	937.4	
TEMPERATURE	90	153.9	189.5	228.3	270.4	316.1	365.5	418.8	476.2	537.9	604.0	674.7	750.2	830.7	916.4	
deg F	100	142.2	176.5	214.0	255.0	299.6	347.9	400.3	456.8	517.6	582.9	653.0	727.9	807.9	893.1	983.7
	110		161.3	197.6	237.5	281.0	328.4	379.8	435.4	495.5	560.1	629.5	703.9	783.4	868.2	958.4
	120				218.7	261.2	307.6	358.2	413.0	472.4	536.3	605.2	679.0	758.1	842.5	932.5
	130						286.6	336.3	390.4	449.1	512.4	580.7	654.1	732.8	816.9	906.6
	140							368.4	426.4	489.2	557.0	630.0	708.3	792.1	881.7	977.1
	150										534.9	607.5	685.5	769.1	858.5	953.8

FIG. 10

# PSYCHROMETRIC CHART

© 1960 THE TRANE COMPANY LA CROSSE, WISCONSIN  
Barometric Pressure 29.921 Inches of Mercury



ENTHALPY - Btu per lb. of dry air and associated moisture

FIG. 11

ET182236858US  
20 of 22

ET18223695845  
21822

## BLOWER PERFORMANCE DATA

### MODEL AH20

Blower Speed	S.C.F.M. at E.S.P.							
	.1	.2	.3	.4	.5	.6	.7	.8
High	2125	2100	2055	2020	1990	1930	1870	1820
Med. High	1730	1710	1695	1675	1655	1620	1600	1565
Low	1385	1375	1365	1360	1345	1290	1300	1280

Note: C.F.M. deliveries shown are with filter and coil in place.

FIG. 12

FORM 65-1250

ET182236958US  
22 of 22

COOLING PERFORMANCE DATA																
HEAT PUMP MODEL NUMBER:		BRHS060B														
INDOOR COIL MODEL NUMBER:		U25R60RV														
INDOOR AIR		AIR TEMPERATURE ENTERING OUTDOOR UNIT														
		75°			85°			95°			105°			115°		
		CAPACITY MBTUH			CAPACITY MBTUH			CAPACITY MBTUH			CAPACITY MBTUH			CAPACITY MBTUH		
ID CFM	ID DBWB	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.
1500	85/71	63.7	39.0	4.51	60.4	37.8	4.85	57.1	36.8	5.19	53.7	35.4	5.50	50.2	34.1	5.80
	80/67	58.1	37.4	4.34	55.3	36.3	4.68	52.4	35.1	4.98	49.2	33.8	5.27	46.0	32.5	5.55
	75/63	53.2	36.1	4.22	50.4	34.9	4.52	47.8	33.6	4.81	44.7	32.3	5.08	41.7	31.0	5.30
	73/61	51.1	35.9	4.15	48.5	34.9	4.44	45.9	33.8	4.72	43.0	32.4	4.96	40.1	30.9	5.20
1700	85/71	64.9	41.3	4.55	61.5	40.1	4.89	58.1	38.8	5.23	54.6	37.6	5.54	51.0	36.4	5.85
	80/67	59.3	39.8	4.39	56.3	38.6	4.72	53.3	37.4	5.04	50.1	36.0	5.32	46.8	34.8	5.60
	75/63	54.4	38.1	4.25	51.7	36.9	4.55	48.9	35.7	4.85	45.8	34.3	5.10	42.6	32.8	5.35
	73/61	52.2	38.0	4.20	49.5	36.8	4.49	46.8	35.6	4.77	43.9	34.3	5.01	40.9	32.9	5.25
1900	85/71	65.9	43.4	4.58	62.4	42.2	4.93	58.9	40.9	5.27	55.4	39.7	5.59	51.9	38.4	5.91
	80/67	60.4	41.8	4.43	57.3	40.5	4.76	54.1	39.2	5.08	50.9	37.9	5.36	47.6	36.5	5.64
	75/63	55.5	39.9	4.29	52.6	38.7	4.59	49.6	37.4	4.89	46.4	36.0	5.14	43.1	34.6	5.39
	73/61	53.3	39.9	4.22	50.6	38.7	4.52	47.8	37.4	4.81	44.6	35.9	5.06	41.4	34.4	5.30
NOTE: All capacities are net with indoor fan already deducted at 1250 BTUH / 1000 CFM. KW rating for outdoor unit only.																

Fig. 13.